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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/768,883	02/02/2004	Sivaramakrishna Kuditipudi	10.0711	7305
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CLEMENTS WALKER 1901 ROXBOROUGH ROAD SUITE 300 CHARLOTTE, NC 28211			EXAMINER ELALLAM, AHMED	
			ART UNIT 2616	PAPER NUMBER
			MAIL DATE 12/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/768,883

Applicant(s)

KUDITIPUDI ET AL.

Examiner

AHMED ELALLAM

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13, 15-32, 34 and 36-43 is/are rejected.
- 7) ☒ Claim(s) 12, 14, 33 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:

The status of incorporated U.S references indicated on respective pages 8 and 9 should be updated.

On page 14, line 6, the numeral character "356" should be changed to "365".

On page 14, line 13, the numeral character "310" should be changed to "305" to be in conformance with the drawing of figure 3.

Applicants are requested to correct any other typo errors that may still exist throughout the specification.

Appropriate correction is required.

### ***Claim Objections***

2. Claim 42 is objected to because of the following informalities:

Claim 42 is an article of manufacture having a machine-readable medium having instructions for performing the detection and mapping steps, however the term "executing" of the instruction is missing. Appropriate correction is required in order to avoid 35 USC § 101 rejection of the claim of being non statutory.

### ***Claim Rejections - 35 USC § 102***

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-11, 13, 15-32, 34, 36-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Trudel et al, US 2004/0190444. Hereinafter referred to as Trudel.

Regarding claim 1, with reference to figure 4a , Trudel discloses a method for restoring a connection in a network, the method comprising:

detecting a failed line (i.e. fiber cut) in a link between a first network element, (claimed first node) and second network element (claimed a second node), see paragraph [0005], where the failed line is associated with a failure in a working path (claimed a sub network connection (SNC)); and the network elements use overhead byte messages to implement local protection switching and switch selection on an available local protection segment or link, and establishing a protection path using protection signaling messages (claimed mapping the sub-network connection) between the source and destination network elements, see paragraph [0014]. (Claimed mapping the sub network

connection (SNC) to an alternate line in the link in order to permit restoration of the SNC.

Regarding claims 2 and 23, Trudel discloses the lines are a fiber optic lines, and the protocol used are SONET protocols. See paragraph [0038].

(Claimed the failed line and the alternate line are established by use of Optical Signaling & Routing Protocol (OSRP)).

Regarding claim 21, with reference to figure 4a, Trudel discloses an apparatus for restoring a connection in a network, the apparatus comprising:

first network element 1 (claimed first node); and second network element 2 (claimed a second node) grouped by fiber optics (claimed link) to the first network element node; the first network element is configured to detect a line failure between the first and second network elements, see paragraph [0005], (claimed the first node is configured to detect a failed line in the link connecting the first node and the second node); the failed line is associated with a failure in a working path (claimed a sub network connection (SNC)); and the network elements use overhead byte messages to implement local protection switching and switch selection on an available local protection segment or link, and establishing a protection path using protection signaling messages (claimed mapping the sub-network connection) between the source and destination network elements, see paragraph [0014]. (Claimed the first node is configured to map the sub network connection (SNC) to an alternate line in the link in order to permit restoration of the SNC).

Regarding claim 22, Trudel discloses that each network element comprises:

A SONET Layer for detecting the failure between the first network element and second network element; see paragraph [0056]. (Claimed Connection Admission Control (CAC) module configured to identify a failed line in the link between the first node and the second node);

Control unit (figure 4a, unit 37) that determines protective switching data corresponding to the failure, see paragraph [0056]. (Claimed a Call Control module (CCM) configured to identify an SNC that needs to be restored due to the failed line);

A routing table used to map the failed working paths into protective path, see paragraph [0056]. (Claimed Routing and Signaling Information (RSI) module configured to map the SNC to an alternate line in the link in order to permit restoration of the SNC).

Regarding claims 3 and 24, Trudel discloses an identification in the first network element using a local protection channel information to identify an available protection channel on the local protection segment in the event of failure of a local working segment of the first working path, see paragraph [0017], (claimed identifying the SNC based upon the failed line, as in claim 3; and the first node is configured to identify the SNC based upon the failed line, as in claim 24).

Regarding claims 4 and 25, Trudel discloses a shared protection class of service that includes both local and global protection schemes. See paragraph [0035], (claimed mapping step is performed based upon a priority of said SNC).

Regarding claims 5 and 26, Trudel further discloses shared mesh protection signaling scheme that provides a 1:N protection, i.e. one protection path provides protection facilities for N working paths, see paragraph [0069].

Regarding claims 6 and 27, Trudel discloses directing a corresponding network element the protection paths to cross connect the required ports and time slots information resulting in protection path generation upon detection of failure. See paragraph [0069].

Regarding claims 7 and 28, Trudel discloses the network elements use overhead byte messages to implement local protection switching and switch selection on an available local protection segment or link, and establishing a protection path using protection signaling messages, see paragraph [0014]. (Claimed sending a setup message from the first node to the second node).

Regarding claims 8 and 29, with reference to figures 9, Trudel discloses switch card (unit 35, figure 4a) in each network elements (claimed first and second nodes include first and second switch fabric circuits, respectively, said first and second switch fabric circuits having first and second cross connection configurations), Trudel further discloses after the failure has been detected by the network element 8, network element 8 becomes the switching node according to standard SONET switching protocols. The network element 8 then

inserts the appropriate K1 and K2 byte indications into the SONET line overhead 204, 206, for transmission on any of the potentially available protection channels STS#10-15 of the protection segment 7-8, to transport the required protection switch request 44 to the network element 7. A scheme selection function of the identification module 18 confirms that the local protection channels STS#10-15 are available on the local protection segment 7-8. After confirmation, the scheme selection function selects the local protection switching scheme over the global scheme and the network element 7 executes the local protection switch 42 by the switch card 35 to redirect any incoming data packets 20 away from the failed working path channels STS#1-3 on working segment 7-8, and sends an ACK of the switch request received from network element 8, along with an indication of the protection channels selected from those available. A channel selection function of the identification module 17 selects a portion STS#13-15 of the available protection channels STS#10-15 to help maximize local network bandwidth efficiency. Network element 7 is now setup to cross connect all incoming data packets 20, originally destined out from network element 7 on the working channels STS#1-3 of working segment 7-8, onto the selected protection channels STS#15-18 of protection segment 7-8 destined to network element 8. See paragraph [0075]. (Claimed said second node is configured to change said second cross connection configuration in said second switch fabric circuit to obtain a third cross connection configuration in order to permit said second node to transmit data on said alternate line, after the setup-message is received by said second node).

Regarding claims 9 and 30, Trudel discloses sending a setup acknowledgment message from the second network element to the first network element, in response to receipt of the setup message. See paragraph [0014]. (Claimed sending a setup acknowledgment message from the second node to the first node, in response to receipt of the setup message as in claim 9 and the second node is configured to send a setup acknowledgment message to the first node, in response to receipt of the setup message, as in claim 30).

Regarding claims 10 and 31, with reference to figure 7, Trudel discloses if an Acknowledgment is received or not, the Acknowledgment indicates whether a protection P path is established, see paragraphs [0045] and [0067]. (Claimed setup acknowledgment message includes a cause code indicating whether a cross connection configuration in a switch fabric circuit in the second node was successfully created or not successfully created).

Regarding claims 11 and 32, Trudel discloses that the transmitted K-byte values (x, y) (claimed set up message) will be read in time for adequate protection switch processing, and those K-byte values (x, y) that are not read in time, a re-send operation can be done in the event that the corresponding network element 14 does not receive an ACK or NACK. See paragraph [0060]. (A timer is inherent to Trudel because it is required to for the setup message to be read in time. (claimed first node includes a setup acknowledgement timer circuit configured to determine if the setup acknowledgement message is received by the first node within a setup acknowledgement timer period, said

method further comprising: determining if the setup acknowledgment message is received by the first node within the setup acknowledgement timer period.

Regarding claims 13 and 34, Trudel discloses that the function of the K byte value (x, y) (claimed set up message) is to direct the corresponding network elements 14 making up the protection P paths to cross connect the required ports 33 and time slot information resulting in protection P path generation once the failure has been detected, see paragraph [0064]. Trudel, further discloses a scheme selection function that selects a local protection switching scheme so that a switch card (claimed switch fabric circuits) to redirect the traffic from the failed working path channel (claimed sub-network connection) on a working segment, and sends an ACK of the switch request received from the network element, along with an indication of the protection channels selected from those available channel selection function of the identification module 17. See paragraph [0075]. (Claimed first and second nodes include first and second switch fabric circuits, respectively, said first and second switch fabric circuits having first and second cross connection configurations, respectively, said method further comprising: changing, at the first node, said first cross connection configuration in said first switch fabric circuit to obtain a fourth cross connection configuration, in order to permit Said first node to transmit data on said alternate line, after the setup message is transmitted by said first node).

Regarding claims 15 and 36, Trudel discloses determining, at the second node, the failed line by detection of the failed line. See paragraph [0075].

Regarding claims 16, and 37, Trudel discloses the second network element determine the failed line based on the set-up message [0056]. (Claimed the second node is configured to determine the failed line based upon information in a setup message).

Regarding claims 17 and 38, it is inherent to Trudel to delay the mapping of the switched path to an alternate line by a time delay amount, because that is required for the determination of the alternate paths. (Claimed delaying the mapping of the SNC to the alternate line by a time delay amount).

Regarding claims 18, 39, Trudel discloses re-routing traffic on the protected channels in case of line failure from the failed working paths. (Claimed releasing an SNC that is not mapped to an alternate line, wherein there is a stoppage of a flow of data along the SNC that is released).

Regarding claims 19, 20, 40 and 41, Trudel discloses that upon detection of the failure, the network elements use overhead byte messages to implement local protection switching and switch selection on an available local protection segment or link. In the event local protection switching is not available, global protection switching can use a particular overhead byte message format to inform the routing source network element of the failure in the working path. The messages contain a failure indicator, the routing source network element sends the corresponding overhead byte messages down the defined protection path to provide for protection path establishment according to preloaded data associated with the switch cards of the affected network elements. Paragraph [0014].  
(claimed determining if the first node and the second node are capable of

performing a local span mesh restoration (LSMR), as in claims 19 and 40; and claimed if the first node and the second node are capable of performing the LSMR, then determining if at least one potential alternate line in the link is capable of performing the LSMR, as in claims 20 and 41).

Regarding claims 42 and 43, claims 42 and 43 are respectively an article of manufacture and mean claims having the same scope of rejected respective claims 1 and 21 above, thus are subject to the same rejections.

#### ***Allowable Subject Matter***

4. Claims 12, 14, 33 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***


5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See Form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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